APPROACHES TO NATURAL RESOURCES

Natural resources are often examined in Section B Part II of Chemistry 545/1. Two items are examined and a learner is expected to give responses to ***only one*** item.

The responses to the items are as follows;

1. **The category, give reason(s) and then example**

   The other word to mean category can be classified, classification or type. The types are mainly two i.e. **Renewable natural resources** and **Non-renewable natural resources.**

   The reason in this case requires one to **define** the natural resource appropriately and accompany it with example(s). The example is always the specific natural resource. That is, renewable natural resources can be replenished (replaced easily) for example water, air, vegetation among others. Non-renewable natural resources cannot be replenished for example fossil fuels, rocks and minerals.

2. **State the composition of the natural resource**

   Composition refers to the specific combination of elements or compounds that make up a substance. While stating the composition of natural resources, physical and chemical components can be stated if any. For example;

   (a) Trees and vegetation contain elements carbon, hydrogen, nitrogen, Oxygen, magnesium, sodium depending on the soil composition

   (b) Rocks contains calcium carbonate and minerals like iron, copper, gypsum, among others

   (c) Fossil fuels contain elements carbon, hydrogen, sulphur, nitrogen, and oxygen.

   (d) Water a compound of hydrogen and oxygen. It has different dissolved minerals, dissolved gases and microorganisms.

   (e) Air a mixture of gases like nitrogen, oxygen, carbon dioxide, water vapor, rare gases, dust particles and microorganisms.

3. **Identify the impacts of human activity on the environment and suggest possible ways of minimizing them.**

   Here when the human activity is being carried out, what really happens, how does it occur, the physical and chemical changes involved, and how the whole process disrupts the natural resource itself, the organisms that habit that natural resource, and human life for example;

   - Consider the human activity deforestation, by definition, deforestation is the cutting down of trees or clearing forests in a way that reduces forest cover and harms the environment.

     How is cutting down of trees done? Various tools can be used including chain saw, harvester among others which burn fuel. So, the impact is related to both burning fuel and deforestation.

     Burning fossil fuels releases gases like carbon dioxide, sulphur dioxide and nitrogen oxides. These contribute to climate change, acid rain, and respiratory problems. The release of greenhouse gases like methane and carbon dioxide traps heat in the atmosphere, leading to global warming and its associated impacts (rising sea levels, extreme weather events, among others).

     What happens when deforestation is done? The land is left bare, exposing it to agents of soil erosion, reduced rainfall formation, habitats of organisms are destroyed among others.

     Golden tip: clearly understand the human activity, what happens for it to be done, how it is done(chemical and physical processes), what happens after it is done. All these can enable you to come up with various impacts

Possible solutions (Mitigations) to the challenges identified

Mitigation simply refers to the solution or possible best way of minimizing the impact or prevent the adverse effects of the human activity. Alternatively, mitigations refers to the actions taken to reduce or lessen the negative impacts of a chemical process or substance. Responding to the above, burning fossil fuels releases greenhouse gases. Minimizing their impacts, we can plant tree species that grow faster to absorb some of the greenhouse gases, enforcement of strict laws to minimize on cutting down of trees, among others.

State the benefits of the natural resource

Benefits are usually how best the natural resource is to man, the living organisms that inhabit it and the environment at large. You are encouraged not to state but to give a detailed explanation about it's importance for example;

- Trees provide us with oxygen for respiration; during photosynthesis, oxygen is released as a by-product and can be used for respiration.
- Rocks are used for construction; aggregates are mixed with cement and sand to make concrete used for construction of buildings, bridges among others.
- Fossil fuels like coal, natural gas and oil are a source of fuel. They release large amount of heat energy when burnt which is used for transportation, cooking, running machines among others.
- Water bodies provide water for drinking; this helps to cool out bodies and helps to dissolve the food we eat for easy absorption and digestion of food or nutrients by the body.

Golden tip:

The items set always involve two main cores, the natural resource and human activity. The items are always set in the following formats;

- Natural resource and human activities

  Here the item writer sets the item open without specifying the natural resource and human activity. Different parameters like increased population among others or adverse effects of human activities can be stated so as to give light on what is expected including prolonged drought, decreases rainfall, climatic changes, among others. In writing the responses, the learner can use any natural resource and human activity of the own which are in line with scenario context.

  Or, the item writer can specify one, two or more human activities and one or more natural resources being affected. Here, you narrow your responses to the human activity and natural resource in the question for example, bush burning affects air, disposal of wastes into water bodies and grazing cattle in water bodies all affect the water resource.

- Natural resource only

  The item can inform the learner about one, two or more natural resources without talking about the human activity. In response, the learner should be able to identify which human activities affect natural resource(s) mentioned in the item for example, if air and water are included in the item, then identify the human activities that affect the natural resources (air and water) like bush burning, cattle rearing, and explain briefly how the activities have an impact on the natural resources. Relate even with

the minor activities like washing clothes in water bodies among others but these should be realistic, applicable and of sound mind

- Human activities only

  The item writer can inform about one or more human activities neglecting the specific natural resource that is being in question. The human activity could be stated say **deforestation** or defined say **cutting down of trees without replacing them.** In this case, the learner should be able to the natural resources that are being affected for example, industrialization as a human activity can affect air once wastes gases are released, water once wastes materials are discharged into it.

The above are the possible ways **but** though the he item writer can blend tye natural resources and human activities in any way.

Therefore, before attempting the item, check out on the key areas emphasized by the item writer. These could include natural resources, human activities, adverse effects of the human activities, and any other parameter if stated. This is vital, as it gives you a guide on what to prioritize while giving your responses from the; Category, Composition, Impacts of human activities and Mitigations, Benefits of the natural resources.

All the Best to all the members of Class of Integrity